

**AMENDMENTS**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously presented) An optoelectronic transceiver, comprising:
  - a first controller integrated circuit (IC) and a second controller IC, each comprising:
    - logic;
    - a memory configured to store digital diagnostic data corresponding to operating conditions of the optoelectronic transceiver, including data selected from a group consisting of: a loss of received power (RxLOS) signal, a photodiode monitor signal, a power supply voltage (Vcc), an internal temperature, a direct current (DC) bias current, a DC bias power, a transmitter current, a transmitter power, a receiver current, a receiver power, a Thermoelectric Cooler (TEC) temperature, and a TEC load, where at least some of said digital diagnostic data is common to both said first controller IC and said second controller IC;
    - an interface electrically coupled to said memory and configured for communicating said diagnostic data to a host external to said optoelectronic transceiver; and
    - at least one input port electrically coupled to said memory and configured to receive said diagnostic data from other components within said optoelectronic transceiver, including components selected from a group consisting of: a Transmitter Optical Subassembly (TOSA), a Receiver Optical Subassembly (ROSA), a laser driver IC, a post amplifier IC, an Avalanche Photodiode (APD) power supply, a Thermoelectric Cooler (TEC) driver IC, and a power controller IC.
  
2. (Original) The optoelectronic transceiver of claim 1, wherein said interface is a serial interface.
  
3. (Original) The optoelectronic transceiver of claim 2, wherein said serial interface is selected from a group consisting of an I2C serial interface, a 2Wire serial interface, and an MDIO serial interface.

4. (Previously presented) The optoelectronic transceiver of claim 1, wherein said interface is configured to enable said host to read from host-specified memory mapped locations within said memory.
5. (Original) The optoelectronic transceiver of claim 1, further comprising additional components selected from a group consisting of: a Transmitter Optical Subassembly (TOSA), a Receiver Optical Subassembly (ROSA), a laser driver, a post amplifier, an Avalanche Photodiode (APD) power supply, a Thermoelectric Cooler (TEC) driver, a power controller, a pre-amplifier, a laser wavelength controller, an analog-to-digital converter, a digital-to-analog converter, or any combination of the aforementioned components.
6. (Original) The optoelectronic transceiver of claim 1, wherein said diagnostic data is stored in different memory mapped locations in said first controller IC and in said second controller IC.
7. (Original) The optoelectronic transceiver of claim 1, wherein said at least one output port of said first controller IC is electrically coupled to: an Avalanche Photodiode (APD) power supply to supply an APD control signal; and a laser driver IC to supply a direct current (DC) bias control signal.
8. (Original) The optoelectronic transceiver of claim 1, wherein said at least one output port of said second controller IC is electrically coupled to: a laser driver IC to provide an alternating current (AC) control signal; and a Thermoelectric Cooler (TEC) driver IC to supply a TEC control signal.
9. (Previously presented) The optoelectronic transceiver of claim 8, wherein said second controller IC provides said AC control signal to said laser driver IC via a digital to analog converter.
10. (Previously presented) The optoelectronic transceiver of claim 1, wherein said first controller IC further comprises at least one input port electrically coupled to: an Avalanche Photodiode (APD) power supply to receive a photodiode monitor signal; a post amplifier IC to receive a loss of received power (RxLOS) signal; and a laser driver IC to receive a direct current (DC) bias monitor signal and a laser diode monitor signal.

11. (Original) The optoelectronic transceiver of claim 1, wherein said second controller IC further comprises at least one input port electrically coupled to: an Avalanche Photodiode (APD) power supply to receive a photodiode monitor signal; a laser driver IC to receive a direct current (DC) bias monitor signal and a laser diode monitor signal; and a Thermoelectric Cooler (TEC) driver IC to receive a TEC temperature signal.
12. (Canceled)
13. (Original) The optoelectronic transceiver of claim 1, wherein said second controller IC is electrically coupled to a thermistor disposed within said optoelectronic transceiver.
14. (Original) The optoelectronic transceiver of claim 1, wherein said first and second controller ICs are electrically coupled to a power source.
15. (Original) The optoelectronic transceiver of claim 1, wherein said first controller IC is configured to control direct current (DC) bias current supplied to a Transmitter Optical Subassembly (TOSA).
16. (Original) The optoelectronic transceiver of claim 1, wherein said first controller IC is configured to control Avalanche Photodiode (APD) power supplied to a Receiver Optical Subassembly (ROSA).
17. (Original) The optoelectronic transceiver of claim 1, wherein said second controller IC is configured to control alternating current (AC) current supplied to a Transmitter Optical Subassembly (TOSA).
18. (Original) The optoelectronic transceiver of claim 1, wherein said second controller IC is configured control a Thermoelectric Cooler (TEC) in a Transmitter Optical Subassembly (TOSA).
19. (Original) The optoelectronic transceiver of claim 1, wherein the logic of said first controller IC includes a plurality of state machines and the logic of said second controller IC includes a processor that executes stored programs.
20. (Canceled)

21. (Canceled)
22. (Canceled)
23. (Previously presented) An optoelectronic transceiver, comprising:
  - a first controller integrated circuit (IC) and a second controller IC, each comprising:
    - logic;
    - a memory configured to store digital diagnostic data, where at least some of said digital diagnostic data is common to both said first controller IC and said second controller IC;
    - an interface electrically coupled to said memory and configured for communicating said diagnostic data to a host external to said optoelectronic transceiver; and
    - at least one input port electrically coupled to said memory and configured to receive said diagnostic data from other components within said optoelectronic transceiver,
  - wherein said first controller IC further comprises at least one input port electrically coupled to: an Avalanche Photodiode (APD) power supply to receive a photodiode monitor signal; a post amplifier IC to receive a loss of received power (RxLOS) signal; and a laser driver IC to receive a direct current (DC) bias monitor signal and a laser diode monitor signal,
  - and wherein said second controller IC receives said photodiode monitor signal and said DC bias monitor signal via an analog to digital converter.
24. (Canceled)